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ABSTRACT

This review summarizes longitudinal research (as it relates to concerns of learner specialists) reported in "Research in Education," "Reading Research Quarterly," and "Dissertation Abstracts International" during 1960-72. Emphases discovered were: beginning and remedial reading; programs and school organization; admission to, retention in, and exclusion from college; survival in college; career prediction; and longitudinal research methodology. (A 61-item bibliography is appended.) (Author/RD)

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A SURVEY OF RECENT LONGITUDINAL INVESTIGATIONS

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A paper presented to the Learner Specialist Group

Division E. of the AERA, 1972, Chicago.

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The purpose of this report is to survey recent longitudinal research as it relates to concerns of the learner specialists. The present survey is restricted to the longitudinal references in the 1960-72 Educational Research Information Center (ERIC), Reading Research Quarterly (RRQ), and Dissertation Abstract (DA).

The ERIC and Dissertation Abstract indexes were surveyed to determine the longitudinal entries. All of the longitudinal entries were then reviewed and were found to center around the following seven major themes: (1) Beginning Reading, (2) Programs and School Organization, and (3) Remedial Reading. A number of longitudinal investigations centered around the high school, college, and adult level: (4) Inception, Retention and Exclusion from College, (5) Survival in College, and (6) Career Prediction. A final important category concerned longitudinal (7) research methodology.

The numerous ERIC references to longitudinal investigations of early childhood have not been mentioned in this investigation because they are sufficiently large in number to comprise a separate report. A few longitudinal reports of the development of intelligence by Bayley and Guilford were also deferred with the most recent reports of Terman's investigation of genius. The preceding types of longitudinal investigations deserve separate treatment in future Task Force reports.

With rare exception, all of the references in this report represent longitudinal investigations.

BEGINNING READING

Beginning reading was the subject of the national first grade investigations which have been so amply reviewed in the Reading Research Quarterly. The following investigations continue to concern learner specialists who are faced with tasks that predict and determine subsequent reading achievement designed to answer, in part, the above task.

De Hirsch, Jansky, and Langford (1966) have developed a predictive index for subsequent reading and spelling achievement which utilizes Pencil Use, Bender Visuo-Motor Gestalt Test, Wepman Auditory Discrimination Test (WADT), Number of Words Used in a Story, Categories, Horst Reversals Test, Gates Word Matching Test. The major finding centered on the erratic maturational development of children who were premature at birth. This work has implications for early identification of potential reading retardents and preventative programs. However, the validation of the predictive index is still pending ~~validation.~~ The WADT is highly controversial in the light of recent research.

Harckham (1971) added another investigation to predicting reading achievement at grade four from kindergarten measures. The Metropolitan Readiness Test was the best predictor of reading success at third grade with a correlation of .74 between the Metropolitan Readiness Test (MRT) and reading. However, Spache (1966) reported the MRT to be the least predictive of reading

success in the Florida longitudinal readiness investigation. It is possible that racial ethnic variables in Spache's investigation were significantly different from Harckham's subjects.

Morency's three year investigation (1967) of the auditory modality development of children, in relation to reading methodology, was and still is of great interest to reading specialists. Morency observed that there is a developmental progression in the perceptual abilities which are related to reading achievement. The findings appear to be similar to what has already been stressed in past notions of readiness in classical child development. A future combination of the Morency and Spache longitudinal investigations would help clarify a number of readiness issues which confound diagnosis and prediction of reading achievement.

A number of longitudinal investigations have been conducted to determine the efficacy of the Initial Teaching Alphabet (ITA). In general Fry (1967), Wapner (1969), Peveto (1969) reported varying degrees of initial advantage to experimental ITA groups but no significant retention of advantages at grade 3. Favorable advantages were reported by Tanyzer (1968), and by Qai-Ching Ho (1970). Ho recommends that ITA should be started in kindergarten. Tanyzer found that ITA was not significantly better at the end of the second grade. However, the ITA experimental students were better in vocabulary at the end of third grade.

The ITA investigation needs to be extended longitudinally and to explore the possible interaction influence of high first grade

reading skill achievement on arithmetic achievement. If ITA nurtures a headstart in beginning reading, would it not be possible that ITA children would master more arithmetic by application of their reading skills to arithmetic text based curricula?

Another basic longitudinal investigation stressing the need for maximum preventative efforts for initial early reading instruction was reported by Langman and Rabinovitch (1968). The six year reading achievement analysis of good and poor readers by means of a contrasting sample analysis of upper and lower quartiles revealed that: first grade reading success virtually assured subsequent successful reading achievement in the sixth grade. In a sense, Newman (1971) investigated Langman and Rabinovitch's hypothesis and found supporting evidence. These investigations support the notion that far greater instructional efforts need to be provided for the early periods of elementary school reading instruction to prevent subsequent reading deficits.

Johnson's investigation (1965) "Individualized and Basal Primary Reading Programs" extended over a period of three years. Johnson concluded that "...pupils in individualized reading classes can achieve at least as well as and perhaps even better ... than pupils in basal reading programs." (p. 904). It is interesting to note the fact that the individualized reading pupils had developed higher scores in arithmetic and language. One wonders if the individualized reading programs have incidental interaction effects and some unrecognized longitudinal achievement values that have not been sufficiently recognized in prior individualized reading programs.

Beginning reading continues to be a highly controversial issue to learner specialists. There is a great need to do more longitudinal investigations to evaluate the factors that prevent reading disabilities.

REMEDIAL READING

The following investigations are longitudinal in nature. However, they are models of retroactive accountability projects which have required careful preservation of learner records for an evaluation of learning. These investigations also reveal some of the complex problems associated with longitudinal investigations and accountability investigations.

Balow (1965) concluded that the University of Minnesota recipients of intensive reading clinical instruction increased their ratio of pre-remedial rates, .53-.56% of a grade growth expectancy to .75% grade growth expectancy at the end of three clinical years. Balow also concluded that short term intensive instruction is not sufficient to close the gap between reading potential and actual performance. He suggested that future research should be concerned with the longitudinal assessment of intensive clinical instruction.

Balow and Blomquist's (1965) longitudinal follow up of "Young Adults Ten to Fifteen Years After Severe Reading Disability" indicates that quick solutions to reading deficits are discouragingly poor on the basis of evidence from longitudinal investigations. In general, the all male subjects performed significantly better than their fathers in that all of the subjects but 17 percent completed high

school. However, 44 percent of the remedial reading subjects were in unskilled occupations in contrast to their parents of whom only 25 percent were in unskilled occupations. The investigation also detected a tragic state of socio-emotional life adjustment characterized by vagueness of goals. One wonders what the role of counseling and guidance was in the lives of the Minnesota subjects.

Another longitudinal follow up of subjects from reading clinics was conducted by Preston and Yarington (1967). Fifty clinic subjects who had longitudinal clinical diagnostic data were compared with comparable subjects from the general population. Interestingly, the clinical group did not differ significantly from the population in enrollment and graduation from high school and college, and subsequent white-collar employment and/or unemployment. However, clinical subjects took longer to achieve their goal and they required more "nurture" via extra schooling as exemplified by the repetition of grades and subsequent later school leaving age. This study is a remarkable example of John Carroll's model for school learning which stresses the notion that student growth in learning is the function of the time needed and the time spent on content or skills in reading.

Ross's dissertation (1969) reiterates Balow's finding with regard to the need for more individual tutoring time needed for severe reading disabilities. The report also deals with the specific diagnosis and follow up results within a three year period.

There are perrenial investigations to determine the relationship

of dominance to reading disability. Hillerich and Boos (1968) conducted a four year longitudinal comparison of 400 subjects comparing grades 2 and 8. The findings revealed shifts from unilateral dominance to ambidexterity or amieyedness. No significant dominance relationships were found with regard to reading and between sexes. This finding continues to negate the diagnostic significance of dominance in remedial reading.

An accountability implication for remediation of reading defects is that at best remedial reading is a painstaking longitudinal process requiring stable predictable instructional support on behalf of children. Federal and State support of efforts to diminish reading disability needs to become more dependable over longer periods of time. Long term financial support is compatible with what Balow (1965, p. 585) has insightfully observed: "...severe reading disability is probably best considered a relatively chronic illness needing longitudinal treatment rather than the short course typically organized in current programs."

PROGRAMS AND SCHOOL ORGANIZATION

The scarcity of long-term evaluation of student achi vement investigations reflects an inadequate data base for accountability for the innovator of various curricula and organizational change. On the other hand, the few longitudinal investigations which have been reported serve as models to the development of cost effective accountability investigations which have much in common with

longitudinal research.

Balow (1967) reported the influence of staggered reading groups as an administrative innovation to create smaller teacher-pupil ratios so that greater individual reading attention may be given the youngsters. Results revealed cumulative effects in favor of the experimentally staggered small groups of students at fourth grade.

Tutoring is a currently fashionable modification of school curricula and/or organization to increase student learning. Very few tutoring projects have been evaluated longitudinally. Shaver (1970) reported that the influence of tutors who tutored under-achieving readers at the 7th and 10th grade levels was favorable. Shaver recommended that tutoring should be continued. Tutoring may be one way to increase the time spent to meet the requirements of the time needed to overcome deficits in reading proficiency.

Killough (1971) reported: "An Analysis of the Longitudinal Effects that a Nongraded Elementary Program, Conducted in an Open-Space School Had on the Cognitive Achievement of Pupils." He noted that only two prior investigations have reported the influence of open school on student achievement. Killough stated that: "The evidence of this study indicates that after pupils remain in a non-graded program, conducted in an open-space facility, for at least two years that their mean achievement gains will be significantly better during the third year and for the total three-year period than will that of their counterparts in another type of program and facility. They will, moreover, achieve significantly better as

they move into a graded junior high school program than will their counterparts."

Linebarger (1971) reported "A Longitudinal Assessment of the Glendale Junior High School Modular-Flexible Organization for Instruction Focusing on Student Achievement and Morale, 1965-1969." This investigation proposed to assess traditional junior high school notion of teacher-pupil ratios, schedules, and rigid organization in comparison to the flexible module organization of Glendale students. The latter achieved statistically significant differences in Jr. and Sr. High School achievement test results than that of the traditional school and were equal to the traditional when differences were not in their favor. However, measures of student morale did not support the innovative Glendale flexible modular organization.

In view of the current excitement about the alleged advantages of modular flexible organization, new schools, tutoring, paraprofessionals, proponents need to include more carefully designed longitudinal evaluations of such proposals that might benefit from the references mentioned under longitudinal research methods in another part of this paper. The few who have reported should be commended for their accountability efforts on behalf of children and educational consumers.

INCEPTION AND RETENTION OF STUDENTS

Academia has traditionally been concerned with problems of

selection, exclusiveness, and maintenance of standards. However, the Academic Revolution of the 60's is characterized by increased attempts to make college education more available to the formerly excluded students in spite of Riesman and Jencks (1968, p. 154). Thus, the traditional college improvement of learning program for the marginally admissable candidate has now been expanded into programs that give even more severely deficient students an opportunity to survive in college. The phenomena of open admission and/or lower standards for admission is greeted with mixed feelings by professors who purport to be liberal!

An eight volume Merritt College follow up report, 1960, revealed that of the 1,463 population 11 percent continued to be enrolled, 10 percent had transferred to colleges, and 7 percent received two year degrees. The student characteristics were reported in detail. Similarly, Dispenzieri's 1971 report described findings from five investigations concerned with black and Puerto Rican students who had access to Community College preparation, reduced admission standards, remediation counseling, tutoring, and stipends. A third of the entrants graduated from the community college. Dropouts took less attractive positions even though their aspirations were high. The failure to attain higher survival rate goals was attributed to the inherent economic, affective, and educational factors that suppressed the maximum performance of the population.

The high drop out rates occur in spite of increasing efficiency in counseling. Flanagan's (1971, p. 4) report of Project Talent

subjects led him to note that "... findings strongly suggest a substantial improvement in the effectiveness of the guidance programs in our secondary schools." College Counseling and Guidance specialists will also be interested to know that a dissertation by Colgan (DA 69-6255), '68, and Sisson (DA 72-1980), '71, found that counselor's ratings and counselor information (CI) were the best predictors of college and academic success. Teachers predicted better than tests and as well as high school grades. G.P.A. did not add significantly to prediction. Other "predictors" for the accomplishment of student aspirations were identified in the Albany report.

The Albany Information Center of the New York State Education Department (ED 046 020) examined certain inhibitory effects on the plans of high school seniors which were noted three years prior to a follow up investigation. The variables investigated were: income, nearness to college, scholastic status, peer culture, family culture, and guidance efforts. The study confirmed the hypothesis that, in general, students carried out their objectives if they had adequate financial support.

Additional confirmation of the Albany hypothesis is apparent in the COSOP fund investigation by Drew (1971) which followed up 186 college freshmen from the class of 1966 who had received College Science Improvement Project (COSOP) funds. The 1969 surveys revealed that the funding advantage to the freshman was associated with subsequent fewer transfers from the host college, more

aspirations for Ph.D.'s and small insignificant aspirations to teach. COSOP fund availability was significantly related to the selection of majors in physics and engineering.

Schellhammer's (1971) longitudinal analysis of the academic performance of probationary matriculants at Indiana University revealed a relationship of SAT scores and high school ranks to academic success in the first semester courses. SAT scores were found significantly related to the criterion measure of academic success at the end of the first semester. Sisson (DA-72-1980) (1971) noted that English achievement test scores were predictive of G.P.A. with r's in .40's and .50's.

Swindle's (1968) longitudinal evaluation of university performance of freshmen who were enrolled in a program for improvement of learning techniques at Texas A&M University from 1963 through 1966 compared total experimental improvement of learning group with a control group. No significant differences were found in academic achievement. However, when students were compared within colleges, Veterinary Medicine students benefitted from the course, whereas the military students did not. Fewer college dropouts were found among the experimental group.

The examination of the longitudinal reports in this section needs to be superimposed against the current higher education financial and intellectual crisis in the U.S.A. It may well be that the forces for exclusivity may yield to egality with the rise of community colleges. Future longitudinal reports need to evaluate

compensatory post high school "late start" programs just as the Westinghouse Report evaluated Headstart. It could be that a uniquely new American innovation is emerging to nurture late starters.

THE INFLUENCE OF HIGHER EDUCATION IN SURVIVERS

The preceding section was devoted to the process of selection, screening, prediction, and retention. The question now rises, what changes occur in the survivees of the academic process? What attempts are being made to change the higher education process?

A model investigation was conducted by Kingsly (ED 031 726) who followed up 300 randomly selected University of Minnesota General College students after 5 and 10 years and developed a descriptive profile of the students. The major finding was that motivation was the prime factor in student success or failure. Recommendations were made to continue longitudinal evaluation of the curriculum and methods of teaching to determine how adequately the curriculum matches the needs of the students.

Peck's (1967, p. 138) hypothesis that "... the final firming up of adult personality and behavior pattern [occurs] at some rather specific point in time in the early twenties," appears to receive support in Linburgh's (DA 71-28, 129) investigation of the influence of the Wheaton College (Illinois) on the students who responded to the Rokeach Dogmatism Scale -Form E. The findings revealed that significant shifts toward more open mindedness was prevalent

with the senior post-test scores over their pre-test freshmen scores. However, a comparison of Wheaton College senior year versus graduate school retest failed to show significant differences on the Rokeach Dogmatism Scale. It was concluded that value solidification occurred by the senior year at Wheaton College.

Another investigation concerned with the impact of college undergraduate education on students was reported by Larkin (DA-71-25, 537) 1971. Her 1965, '67, '69 results from the College Student Questionnaire (CSQ) revealed significant increases in family independence, cultural sophistication, nd satisfaction with faculty. No significant changes in social conscience and study habits were found in the students from Rosemont College between 1965 and 1969.

Brooks (DA-69-6725) '68 tested and retested Millikan University students between 1965 and 1967 with the College and University Environment Scales (CUES). Conclusions were that college student's place of residence was significant in determining variables on four of the subtest scales of the CUES. Commuting students retained initial rigid preconceptions of university student behavior expectations. Conversely, on-campus students, who were more involved in social student organizations, perceive the environment as being more permissive and more realistic. Small group fraternity residence was not significantly different than large group living.

Another CUES investigation at Northwestern University was reported by Wilson (DA-71-30986), 1971. Wilson found that the 1963 Norms for Practicality, Community, Propriety, and Scholarship

was significantly different from the 1969 upperclassmen. In general, changes between students representative of time periods was linear in Wilson's dissertation. The finding may be indicative of basic changes that characterized the college campus in the 1960's.

The impact of diverse higher education environments on students was the subject of a number of dissertations and other reports of a longitudinal nature. Joseph Katz conducted various personality interviews on samples of Stanford and Berkeley students during their freshman and senior years. Findings revealed that: (1) the university academic intellectual offerings did not relate sufficiently to student motivation and involvement in the process of intellectual inquiry, (2) there was no transfer of student cognitive development to the solution of personal problems, (3) the universities failed to emphasize sufficiently the non-cognitive aspects of education.

The preceding investigations seem to add to Peck's imprint hypothesis of the critical time of college influence on subsequent adult personality. The small college versus the large university dichotomistic overtones also linger in the investigations of Wheaton, Stanford and Berkeley environments. In time to come, quien sabe, large scale longitudinal investigations by Katz, Kingsley, Lindberg, et al will determine the facts. Basically, the preceding longitudinal investigations are accountability reports that leave plications for the college compuses of the 1970's.

CAREER PREDICTION

Assuming that "the task of the counselor is to facilitate the client's self-appraisal rather than to make an objective diagnosis" Tyler (1964, p. 79) presents an imposing challenge to learner specialists when faced with career counseling. The tenuous nature of career prediction as attested by the following reports which suggest that many counselors ought to put dampers on dogmatic prediction. It appears that career prediction on the basis of longitudinal evidence is extremely hazardous.

Yoesting and associates (ED 023 514), 1968, found that their theoretical model to predict occupational choice was weighted heavily with SES. Occupational and educational aspiration was not sufficient to predict the real choices of 123 subjects. In this remarkable 20 year longitudinal study, the investigators reported a need to add additional variables to identify the large unaccountable variance.

Other explorations of model development for career prediction was reported by Gribbons and Lohnes(ED 010 282), 1966, and (ED 028 490), 1968. Their longitudinal investigations of career development found support for their model of occupational stage development in a 3, 5, and 7 year follow up series of interviews for 111 careers in progress during 1966. The authors' 1968 report found that intelligence, SES, place of residence and military service influenced educational aspirations. They also noted that bright students from less affluent environments often failed to follow up their original

goals. The need for career positive self concepts was a factor in attaining career goals.

Further attempts to improve vocational career prediction and selection may be developed by research such as Droge's (ED 010 702). Droge's primary purpose in the GATB longitudinal study was to investigate effects of the maturation or growth process on aptitude scores. He found that the General Aptitude Test Battery revealed the largest maturational differences between 9th and 12th grade and the smallest between 11th and 12th grade. The occupational aptitude pattern stability was increased through the use of a "Band" around the cutting scores.

The predictive validity of high school aspirations in career attainment was investigated by Boehlen and Voesting (ED 824 821). The investigators found that 1948 occupational aspirations of 152 Iowa males and females were not good predictors of 1956 actual occupations. Hartman's (ED 025 649) 1968 report revealed that parental occupational aspirations for their children in 1948 were not congruent with 1967 attainment. The investigation also revealed that the 1948 occupation and location of the parents were also not related to their aspirations for their offspring.

The critical pre-high school period was identified in O'Dowd and Beardslee's (ED 028 307) 1967 investigation of college student perception images of the higher-level professions and occupations. Images were found common to all college students and the images were formed early in the pre-high school period. The previous

investigation lacks a comparable investigation of non-college youth.

At the high school level, the influence of specific course work on subsequent career success was investigated by Flis (DA-69-11, 392), 1968. Flis used the Forkner Test on 297 in 1963 at the 9th and 12th grade level and found that enrollment in general business courses favorably influenced students when compared to non-enrollees in application of the business knowledge and in actual business achievement. Ironically, there were no significant differences in general business knowledge between the compared groups.

Moving up the developmental period into early adulthood the following investigations have been reported.

Tate and Knopf (ED 126 510), 1968, sampled 3000 enrollees of the 1962 practical nursing classes and found that CA 25, marriage, and lower middle class income status were the factors that predicted success after a 15 year follow up. Convenient location of the training program and subsequent employment were important to the trainees who had average scholastic success in high school.

Thompson (ED 010 192), 1966, conducted a 1965 career analysis of former 1952, '56, '58, '60, '61 vocational agriculture teachers. A description of the teacher characteristics associated with subsequent 1965 status was indicated with various statistical tests for the relationships of specific factors concerned with continuation in vocational agriculture careers.

Current federal emphasis on career education may be viewed

with some mixed reactions if the salient findings of longitudinal investigations are to be taken seriously. Attempts to polarize occupational choice appear to be doomed to failure due to unpredictable factors. In this predicament there is a danger of closing options to youth by stressing premature occupational choices. On the other hand, the unrealistic occupational choices of pupils and parents may be delimited as parents, children, and professionals perceive the longitudinal aspects of career development from kindergarten through college through career education. Future longitudinal investigations will hopefully account for the influence of the present emphasis placed on career education.

LONGITUDINAL RESEARCH METHODOLOGY

Current problems in education, compensatory education, remedial reading, and performance based evaluation of teachers by nature cannot be validly examined in cross sectional and/or short periods of research. The dependent variable has a way of being ephemeral or slow in emerging as a result of treatment. Consequently, the need for the application of longitudinal research models, designs, and procedures has now reached the stage where a collection of longitudinal methodological references is over due.

The following references appear to fill this immediate void and should strengthen the total data base for longitudinal research planning.

The advancement of longitudinal research by learner specialists

may be augmented by closer examination of the recent longitudinal research methodology literature. Fearing and Kowitz (1967) assembled the views of an international group of researchers on the problems of longitudinal research. This document contains important notions about longitudinal procedures that should be of great help to the planning of longitudinal research. The wisdom of some present and former researchers: Curtis, Strang, Harlow, Ojemann, Papousek, and Wrightstone are contained in this document.

The Educational Testing Service has indicated considerable interest and concern with longitudinal research methodology as the following publications indicate.

John B. Carroll's "A Model of School Learning" (1963) has been proposed for short term investigations of the amount learned being a function of the amount of time needed and the amount spent. Although the original intent of the model appears to be designed for relatively small units of time and learning within a semester of language study or verbal learning, the model may have even greater significance in longitudinal compensatory type educational programs. Carroll's model can be used to explain results gained in remedial reading clinics as Balow, Rawson, Preston and Yarington's findings seem to indicate. Dyslexics need much more time to master their reading tasks. Carroll's model may be examined for its potential to predict educational costs of compensatory programs on a longitudinal basis.

Emmerich (1967) raised questions regarding "How Are Measurement

Strategies Related to Models of Human Development?" He concluded his discussion by noting that models of human development call for longitudinal research which have a variety of potential virtues not found in other approaches.

Wert's models (1971) suggest procedures to identify and estimate unmeasured variables in path analysis. Freeberg's (1970) biographical inventory comparison of cross-sectioned and longitudinal results over periods covering seventh, ninth, and eleventh grades showed similarities. However, only the longitudinal sample was sensitive to transition effects.

Murray and Wiley (1970) reported "New Statistical Techniques for Evaluating Longitudinal Models." The authors' primary concern was to develop statistical models which permit the investigation of structure in fallible longitudinal data. This presentation includes statistical descriptions for designers of longitudinal research.

Astin and Boruch (1970) described "A 'Link' System for Assuring Confidentiality of Research Data in Longitudinal Studies" under the aegis of the American Council on Education. Counter measures and destruction of original data feature a system to preserve anonymity of subjects. A similar discussion for ACE subjects was also reported by Boruch (1969).

Spache, Andres, Curtis, Rowland, and Fields's investigation "A Study of a Longitudinal Reading Readiness Program" (1965) compared the readiness growth factors between experimental and control groups of Negro and White pupils in Florida. This

investigation serves as a complex model for intensive short-term month by month longitudinal measurement ~~resources~~ of readiness factors as related to subsequent first grade achievement. It is most unfortunate that this investigation could not have been extended through the elementary grades in view of the comprehensive design.

Gosser (1969) described "A Computerized Method of Longitudinal Evaluation of Student Performance." Student responses to questionnaires form a basis for instructor response to the question "Am I doing a good job of teaching?" This is an interesting innovation of focusing longitudinal investigative procedures on the developmental teaching performance of the professor.

The relationships between models of longitudinal research need to be compared in more detail with models of accountability.

SUMMARY

Some impressions of a survey of recent longitudinal entries into ERIC, Dissertation Abstracts, and Reading Research Quarterly are: 1. It is heartening to note the trend and frequency of longitudinal investigation at or above the secondary level. 2. In the area of reading the longitudinal studies are lacking. The extravagant claims made for the innumerable reading systems which are posed as reading instructional panaceas is not backed up by the verification of longitudinal evidence. However, this is only a realistic observation brought out by Komiski who noted before a House Committee that only 10 percent of commercial educational

instructional products have been field tested! 3. There is a neglect of longitudinal research at and below the Jr. High school level even though as Dr. Bloom observed, there is an abundance of data for longitudinal studies. 4. Longitudinal research methodology is receiving a great deal of attention in articles and monographs, and this is as it should be to cope with the current trend which stresses competencies, performance base instructional evaluation. The performance evaluation needs to be validated with the more conservative tests which can only be evaluated by means of longitudinal techniques. 5. There are longitudinal investigations which should attract the attention of proponents of accountability and performance based evaluation. In a real sense longitudinally oriented researchers have pioneered the basis for accountability and performance based evaluation.

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